

Abstract Submitted
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Accelerator and cosmological constraints on low mass WIMP models compatible with DAMA and CoGeNT searches CLYDE REDGER, GINTARAS DUDA, Creighton University — Recent dark matter experiments have generated much interest in light ($m_{DM} < 15$ GeV) dark matter particles. The DAMA/LIBRA and CoGeNT direct detection experiments have detected signals that could be interpreted as a Weakly Interacting Massive Particle (WIMP) with a mass range of $m_{DM} \sim 5 - 10$ GeV and a WIMP-nucleon cross section of approximately $\sigma \sim 7 \times 10^{-41} \text{cm}^2$. In addition, the Fermi Gamma Ray Space Telescope has detected gamma rays from the Galactic Center that, if interpreted as dark matter annihilations, imply a mass range of $m_{DM} \sim 7 - 10$ GeV. There are several dark matter models that can produce WIMPs in this region. We determine the viability of these models by subjecting them to current constraints from colliders and other direct detection experiments.

Clyde Redger
Creighton University

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